No. 884,908. PATENTED APR. 14, 1908.

W. A. DORSEY.

SAFETY CATCH FOR ELEVATORS.

APPLICATION FILED MAR. 28, 1907.

3 SHEETS—SHEET 1.

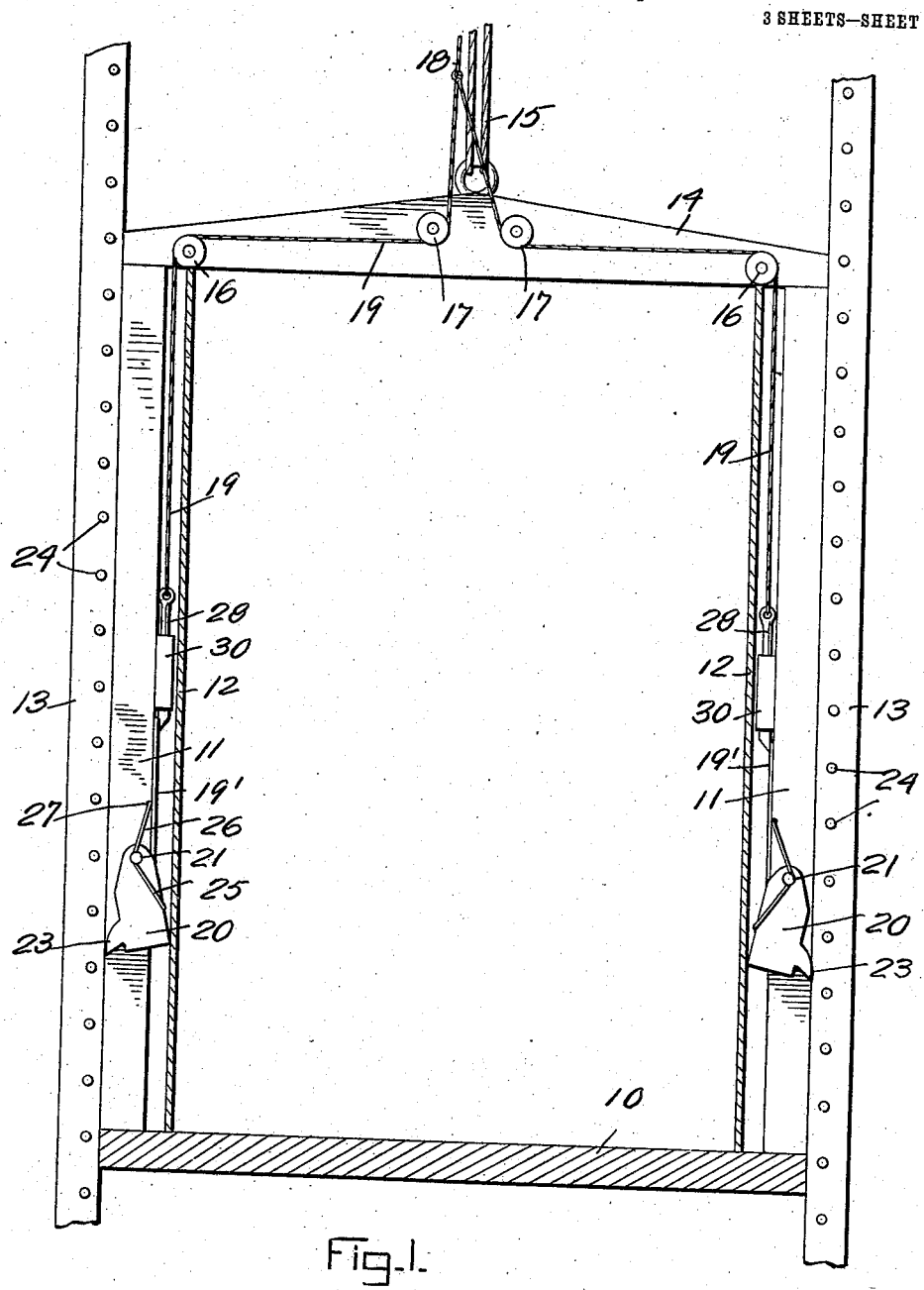


Fig. 1.

WITNESSES:

G. R. Thomas

F. G. Smith

INVENTOR

W. A. Dorsey

BY Dyrenforth Dyrenforth

Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

No. 884,908. PATENTED APR. 14, 1908.

W. A. DORSEY.

SAFETY CATCH FOR ELEVATORS.

APPLICATION FILED MAR. 28, 1907.

3 SHEETS—SHEET 2.

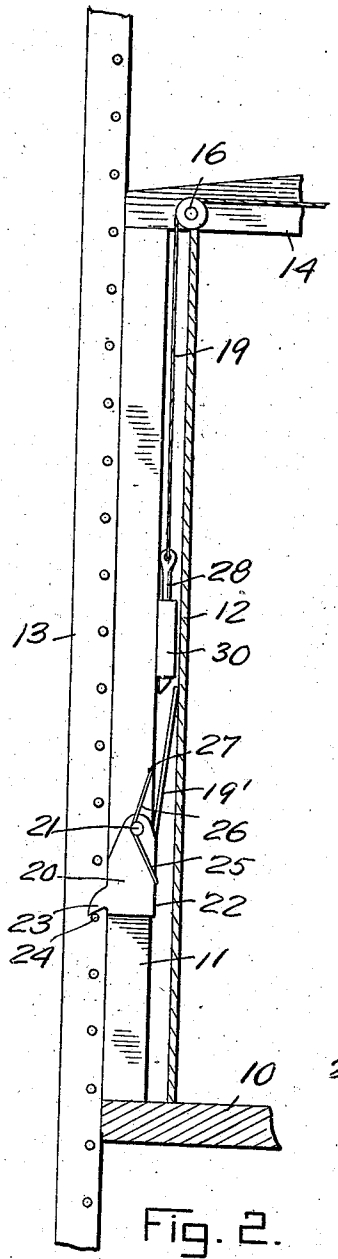


Fig. 2.

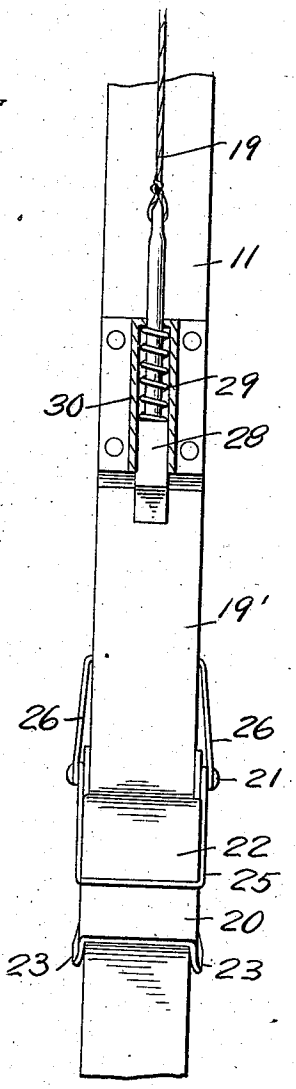


Fig. 3.

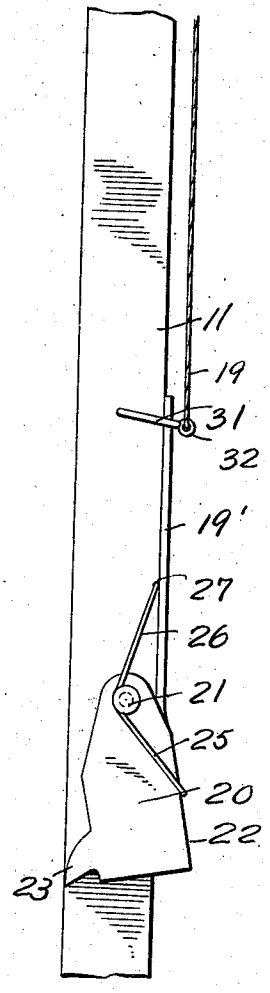


Fig. 4.

WITNESSES:

G. R. Thomas

F. G. Smith

INVENTOR

W. A. Dorsey

BY Crandall & Crandall

Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

No. 884,908. PATENTED APR. 14, 1908.

W. A. DORSEY.

SAFETY CATCH FOR ELEVATORS.

APPLICATION FILED MAR. 28, 1907.

3 SHEETS—SHEET 3.

Fig. 5.

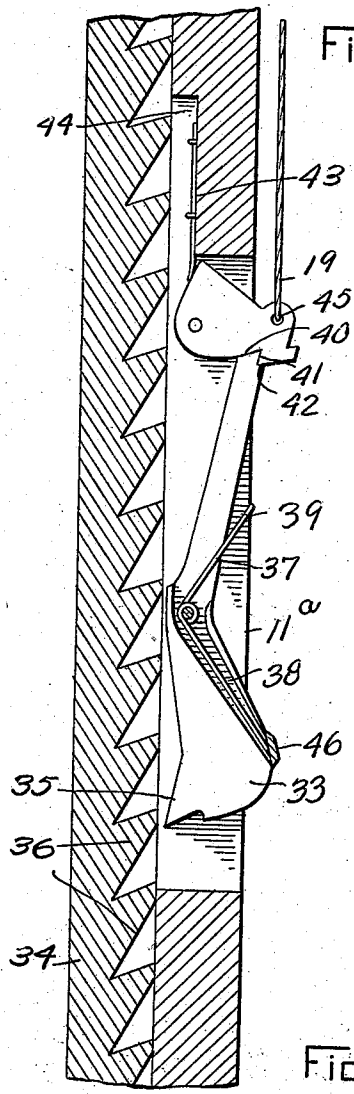


Fig. 6.

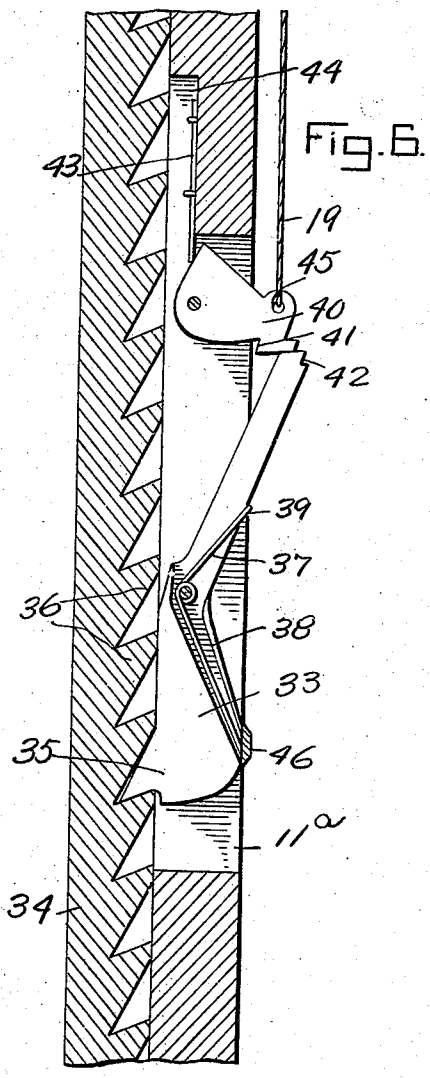
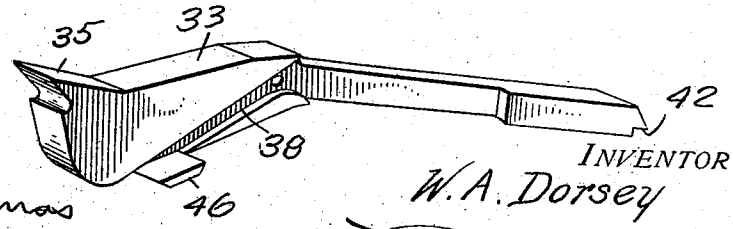


Fig. 7.



WITNESSES:

G. R. Thomas

H. G. Smith

INVENTOR

W. A. Dorsey

BY Brandon & Brandon

Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WALTER A. DORSEY, OF LIBERTY, WEST VIRGINIA.

SAFETY-CATCH FOR ELEVATORS.

No. 884,908. Specification of Letters Patent. Patented April 14, 1908.

Application filed March 28, 1907. Serial No. 365,112.

To all whom it may concern:

Be it known that I, WALTER A. DORSEY, a citizen of the United States, residing at Liberty, in the county of Putnam, State of West Virginia, have invented certain new and useful Improvements in Safety-Catches for Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to safety catches for elevators and has for its object to provide a device of this nature which will positively lock an elevator car, to which it is applied, should the car, by accident, start to fall.

The invention, broadly speaking, resides in the provision of spring actuated detents, means for holding the detents in inoperative position, and a slack rope connected with the said holding means to release the same from engagement from the detents when the weight of the car is thrown upon the said rope by the breaking of the hoisting cables, thereby permitting the said detents to engage suitable rack elements formed on the elevator guide.

In the accompanying drawings: Figure 1 is a vertical sectional view through a portion of an elevator car showing one embodiment of the device applied thereto, the various elements forming my device being shown in elevation. Fig. 2 is a similar view in detail of one side of the car only and showing the position of the detents when the same are released. Fig. 3 is a detail view in elevation of one of the elevator slides removed from its casing in the car, parts being broken away. Fig. 4 is a similar view showing a slightly modified form of holding means for the form of detent shown in the foregoing figures. Fig. 5 is a view similar to Fig. 2 showing a still further modification of the invention, the detent being shown, however, out of engagement with the guides. Fig. 6 is a similar view, partly in section, showing the same released, to engage the guide, and, Fig. 7 is a detail perspective view of the detent block.

In the several figures of the drawings, the numeral 10 denotes an elevator car of the ordinary construction, 11 the slides for the car which are inclosed in a suitable casing 12, and 13 the guides upon which the slides travel.

The reference numeral 14 denotes the bridge to which the hoisting cables 15 for the car are secured and upon the bridge adjacent its ends are journaled pulleys 16 and at its middle, pulley 17. A slack rope 18 has attached to it branch ropes 19 which extend over the pulleys 16 to detents which will be hereinafter described. The slack rope 18 extends together with the hoisting cables 15 to the usual winding drum, (not shown) and is wound around the same together with the said cables, thereby maintaining a uniform tension.

The form of detent shown in the first four figures of the drawings comprises a plate 19′ which is provided at each of its sides and at its lower portion with a flange 20 which flanges lie upon opposite sides of the respective slide and through which and the said slide is engaged a pivot pin 21, the said plate being bent outwardly at an angle from the slide at its flanged portion as at 22. Each of the flanges is provided upon its outer edge and adjacent its lower end with a downwardly directed finger 23 which is designed for engagement with the rack elements of the guide used in connection with this form of the invention.

The rack elements above mentioned are in the form of pins 24 which project from opposite sides of the said guides and the fingers 23 are bent slightly laterally as shown in Fig. 3 to permit ready movement into engagement with the said pins when it becomes necessary. To exert a tension on the detent in the direction of the guides, I provide a spring 25 which is bent upon itself at opposite sides of its middle to form a connecting portion which bears against the portion 22 of the detents and spaced portions 26 which are twisted around the respective ends of the pivot pin 21 and have their ends bent inwardly toward each other and seated in a groove 27 formed in the inner face of the slide.

To hold the detent normally out of engagement with the rack elements, I provide a sliding bolt 28 which is normally held with one of its ends in engagement with the upper end of the body portion of the respective detent plate by means of a spring 29 which, together with the bolt 28 is mounted in a housing 30. The bolt 28 upon each of the slides is provided at its upper end with an eye for the attachment of the end of the respective branch ropes 19 whereby the said bolts may be disengaged from their related detents.

In Fig. 4 of the drawings, the bolt and its related parts are eliminated and a spring yoke 31 is substituted therefor, the said yoke being secured at its ends to the sides of the slides in position to bear against the body portion of the detent plate and being provided in its connecting portion with a loop 32 for the attachment of the branch ropes 19.

In the form of my invention shown in Figs. 5 and 6 I provide a slotted slide member 11[a] and pivotally mount in the slot therein a detent 33 which is in the form of a block having formed upon its edge adjacent the guides 34 for the car, a finger 35 which is directed downwardly and outwardly from the said edge of the block and adjacent the lower end thereof, for engagement with the rack elements of the guides 34 which, in this case, are in the form of rack teeth 36.

In order to normally force the detent in the direction of the guides I provide a spring 37 which is seated in a groove 38 formed in one of the side faces of the detent and which is bent around the pivot pin for the said detent and secured at its end to the rear side thereof as at 39. In order that the detents may be normally held out of engagement with their guides 34, I provide a second block 40 which is also pivoted in the slot in the slide and above the detent 33, the said block being provided, in its edge opposing the upper end of the detent, with a notch forming a tooth 41 which, when the detent is out of engagement with the rack teeth 36, seats in a notch 42 formed in the inner edge face of the detent 33, a spring 43, which is seated in a recess 44 formed in the outer face of the slide, serving to hold it normally in this position. Each of the blocks 40 is provided with an opening 45 for the attachment of the branch ropes which lead from the slack rope 19.

To brace the detents against the shock caused by their sudden engagement with the rack teeth 36 I provide a plate 46 which is secured to the inner edge of each of the detent blocks 33 and bears against the adjacent faces of the respective slides at each side of the slot therein when the said detents are in the above described position.

From the foregoing it will be seen that in case the hoisting cables break, the entire weight of the car will be thrown upon the slack rope and its branch ropes, thereby disengaging the holding elements of either form of the invention from their respective detents and allowing the same to spring into engagement with the rack elements of the slides for the car to stop the same, as will be readily understood.

What is claimed is:

1. In a safety device for elevators, the combination with the slides of an elevator car and the rack guides therefor, of detents carried by the slides, said detents comprising each a body portion formed with spaced side portions extending one upon each side of said slide a spring-controlled latch carried by each of said slides and normally engaged with the upper end of the body of the respective detent, the said side portions of each detent being formed with fingers adapted for engagement with the rack guides, the said latches serving to hold the detents normally out of such engagement, and a slack rope having branches connected to the latches.

2. In a safety device for elevators, the combination with the slides of the elevator car and the rack guides therefor, of detents comprising each a body portion and spaced side portions which extend upon opposite sides of the slides, a pivot bolt passed through the said side portions and through the slides, said detents being designed to rock upon the slides and having the vertical edges of their spaced portions formed with fingers which are extended from the said edges and are curved laterally in a direction from the corresponding sides of the slide, a spring tending to force said detents into engagement with said rack guides, latches normally engaged with said detents for holding the same out of such engagement with the rack guides, and a slack rope having branches connected with said latches whereby a pull upon said rope will move said latches from such engagement with said detents.

In testimony whereof, I affix my signature, in presence of two witnesses.

WALTER A. DORSEY.

Witnesses:
W. F. CARNEY,
J. A. CARNEY.